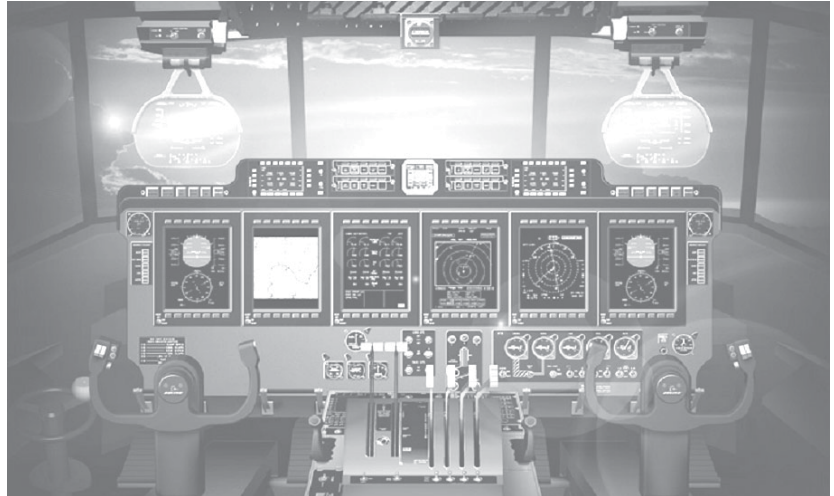


AIR FORCE PROGRAMS

C-130 Avionics Modernization Program (AMP) and Common Avionics Architecture for Penetration (CAAP)

SUMMARY

- The C-130 Avionics Modernization Program (AMP) and Common Avionics Architecture for Penetration (CAAP) Program were combined to accommodate Air Force navigation and safety initiatives, as well as civil communications, navigation, and surveillance for air traffic management requirements, and to add a variety of capabilities to Special Operations Forces C-130 aircraft.
- One development systems office, six system program offices, and two lead commands are participating in the basic C-130 AMP/CAAP program.
- The Navy/Marine Corps participation adds two additional program offices to AMP/CAAP management.
- DOT&E approved the C-130 AMP/CAAP Test and Evaluation Master Plan (TEMP) in 2002. An update is required due to program changes that will impact the sequence and scope of testing, plus the duration of planned tests.
- The first demonstration flight for partial C-130 CAAP capability is planned in March 2005, and the demonstrations will continue into 2006.
- A low-rate initial production decision (Milestone C) for both AMP and CAAP is currently planned for February 2006.



Modernized cockpits, with the replacement of aging and unreliable avionics and the addition of necessary equipment, will provide safety as well as new communications, navigation, and surveillance capabilities.

SYSTEM DESCRIPTION AND MISSION

The C-130 AMP is intended to lower the cost of ownership of the U.S. military's legacy C-130 fleet, while complying with the Air Force Navigation and Safety Master Plan, required navigation performance requirements, and other applicable Communications, Navigation, and Surveillance/Air Traffic Management requirements. Modernized cockpits, with the replacement of aging and unreliable avionics and the addition of necessary equipment, will provide safety as well as new communications, navigation, and surveillance capabilities. The AMP modifications should reduce cockpit crew size as well as increase aircraft reliability, maintainability, and sustainability. AMP is also intended to improve precision airdrop capability for the combat delivery fleet, meet Night Vision Imaging System requirements, and improve the C-130's precision approach and landing capability. This program provides the interfaces necessary to integrate real time information in the cockpit. A standardized basic cockpit should allow initial training for pilots for any AMP cockpit and to undergo mission qualification upon reaching a specific unit. The CAAP will add a variety of other capabilities to Special Operations Forces aircraft.

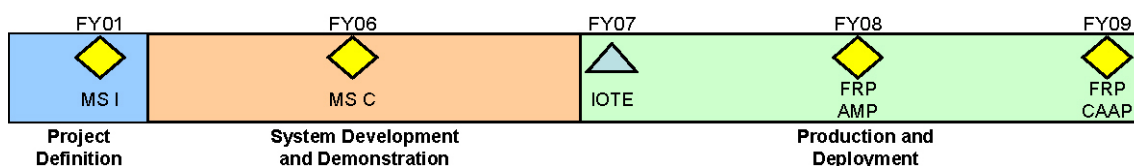
A Milestone B decision resulted in the C-130 AMP contract in July 2001. As part of a Special Operations Forces acceleration effort, a Combat Talon I (MC-130E) will be modified in early October 2004 leading to demonstration of prototype radar and terrain following functionality. The first demonstration flight is planned in March 2005, and the pre-developmental testing will continue into 2006. Meanwhile, the System Development and Demonstration phase of the basic AMP design is focused on a first flight date for a modified C-130H2 early in 2006.

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An integrated government/contractor test team will perform developmental test and evaluation flights. Air Force Operational Test and Evaluation Center personnel will participate as part of the government contingent in preparation for an AMP IOT&E beginning in the fall of 2007.

A low-rate initial production decision (Milestone C) for both AMP and CAAP is currently planned for February 2006 with full-rate production decisions for AMP and CAAP, respectively, in mid-2008 and late-2008.

TEST AND EVALUATION ACTIVITY



Since entering System Development and Demonstration, the AMP/CAAP efforts have experienced considerable programmatic turmoil. Impacts on test resources and test planning have been significant due to funding issues, new requirements, additional deliveries, and accelerated Special Operations capabilities. The combined operational test and evaluation, developmental test and evaluation, and live fire test and evaluation (LFT&E) teams have been working in concert to generate a comprehensive test strategy. The Integrated Test Team Working Group is formulating the specifics of the LFT&E program and the TEMP.

The successful testing of AMP and CAAP capabilities across a broad range of aircraft configurations and mission requirements will be a significant challenge. The users - from eight different commands, as well as the developers, from four Air Force and two Navy program offices - must commit to a unified fleet management approach for the funding, modification, and testing of all aircraft. Production representative aircraft in appropriate mission configurations will be one of the keys to successful operational testing. Concurrent development of different Mission Design Series modifications will add risk to the technical developments and to the schedule. At present, ten combined developmental/operational tests, two dedicated operational tests, and an undetermined number of follow-on operational tests are slated over the next four years.

The following table shows the different Mission Design Series of the Air Force C-130s to be modified and some of the special test requirements applicable to them:

C-130s and Special Test Requirements by Mission Design Series (MDS)

MDS	Nomenclature	Special Tests
C130E/H/H1/H2/H3	Combat Delivery	CNS/ATM Capabilities, Traffic Alert and Collision Avoidance System, Terrain Awareness Warning System, Night Vision Imaging System, Flight Management System
AC-130H/U	Gunship	Gunfire Accuracy, Enhanced Situational Awareness, Defensive Systems
EC-130H	Compass Call	Mission Unique
HC-130N/P	Combat Rescue	Mission Unique
MC-130E	Combat Talon I	Terrain Following/Terrain Avoidance Navigation
MC-130H	Combat Talon II	Terrain Following/Terrain Avoidance Navigation, Enhanced Situational Awareness, Defensive Systems
MC-130P	Combat Shadow	Mission Unique
LC-130H	Ski	Mission Unique

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TEST AND EVALUATION ASSESSMENT

DOT&E approved an initial C-130 AMP/CAAP TEMP in September 2002 based upon an acquisition strategy that has been supplanted by restructuring the program. Due to funding changes, the program has slipped approximately two years in the execution of System Development and Demonstration, and the Special Operations Force aircraft effort has been expanded and accelerated. A new test and evaluation strategy to include an updated TEMP is still unresolved. Major issues facing the C-130 AMP/CAAP program include technical and schedule risks, production representative test articles for operational test, full-rate production decision dates, low-rate initial production quantities, revision of the Operational Requirements Documents, TEMP coordination and submittal, and additional Marine Corps and international participation. It does not appear that the current schedule includes the beyond low-rate initial production report timeline to support the full-rate production decision as it did at the previous Milestone decision. Since the acquisition strategy and the T&E strategy are not consistent, we recommend that a rationalization of the program be completed before the Special Operations Force demonstration flights begin in March 2005.

